Optic canal decompression in patients with vision reduction due to tumour growth in optic canal: A technical note

Muhammad, Sajjad

2020-03

Muhammad , S & Niemelä , M 2020 , ' Optic canal decompression in patients with vision reduction due to tumour growth in optic canal: A technical note ' , Interdisciplinary neurosurgery: advanced techniques and case management , vol. 19 , 100601 . https://doi.org/10.1016/j.inat.2019.10

http://hdl.handle.net/10138/316699
https://doi.org/10.1016/j.inat.2019.100601

Interdisciplinary Neurosurgery 19 (2020) 100601

Contents lists available at ScienceDirect

Interdisciplinary Neurosurgery

journal homepage: www.elsevier.com/locate/inat

Technical notes & surgical techniques

Optic canal decompression in patients with vision reduction due to tumour growth in optic canal: A technical note

Sajjad Muhammad[a,b,*], Mika Niemelä[a]

[a] Department of Neurosurgery, University of Helsinki and Helsinki University Hospital, Helsinki, Finland
[b] Department of Neurosurgery, Medical Faculty, Heinrich-Heine-University, Moorenstrasse 5, 40225 Düsseldorf, Germany

ARTICLE INFO

Keywords:
Optic canal decompression
Visual symptoms
Surgery
Technical aspects

ABSTRACT

Improvement of the vision is one of the main goals in skull base meningiomas compressing the optic nerve (ON) in optic canal (OC). Extracranial drilling of anterior clinoid process with extradural optic canal decompression has been demonstrated in anterior clinoid meningioma surgery. Extensive drilling of anterior clinoid has however some morbidity. Here we demonstrate the technical aspects of intradural opening of optic canal using Kerrison rongeur. This technique is effective and has no additional morbidity.

1. Background

Improvement of the vision is one of the main goals in skull base meningiomas compressing the optic nerve (ON) in optic canal (OC). Extracranial drilling of anterior clinoid process with extradural optic canal decompression has been demonstrated in anterior clinoid meningioma surgery. Extensive drilling of anterior clinoid has however some morbidity.

2. Case description

Here we demonstrate a safe, simple and effective technique to decompress the optic nerve by removing the bone minimally with Kerrison rongeur instead of drilling to minimize potential heat to the ON. We present a case of 58-year old woman with recurrent suprasellar meningioma extending to OC and an ipsilateral reduced vision. We performed the tumour resection using lateral supraorbital approach and standard microsurgical techniques. Finally, we opened the optic canal to decompress the optic nerve and remove the tumour extending along the ON. Technically, first step is to remove the dura above the bone along the OC with micro dissector. The next step is using a blunt micro hook to find space between the ON and bone. In the next step a 1 mm Kerrison rongeur is used to safely remove bone with small bites above the optic nerve (Fig. 1 and Video 1). Optic nerve is very vulnerable and any manipulation or coagulation should be avoided. Finally the tumour around the optic nerve was removed using blunt micro hook. The opened optic canal is finally covered with Tachosil. Discharge was on second post OP day with improved vision.

* Corresponding author at: University of Helsinki and Helsinki University Hospital, Helsinki, Finland.
E-mail addresses: sajjad.muhammad@med.uni-duesseldorf.de (S. Muhammad), mika.niemela@hus.fi (M. Niemelä).

https://doi.org/10.1016/j.inat.2019.100601
Received 5 July 2019; Received in revised form 30 August 2019; Accepted 12 October 2019

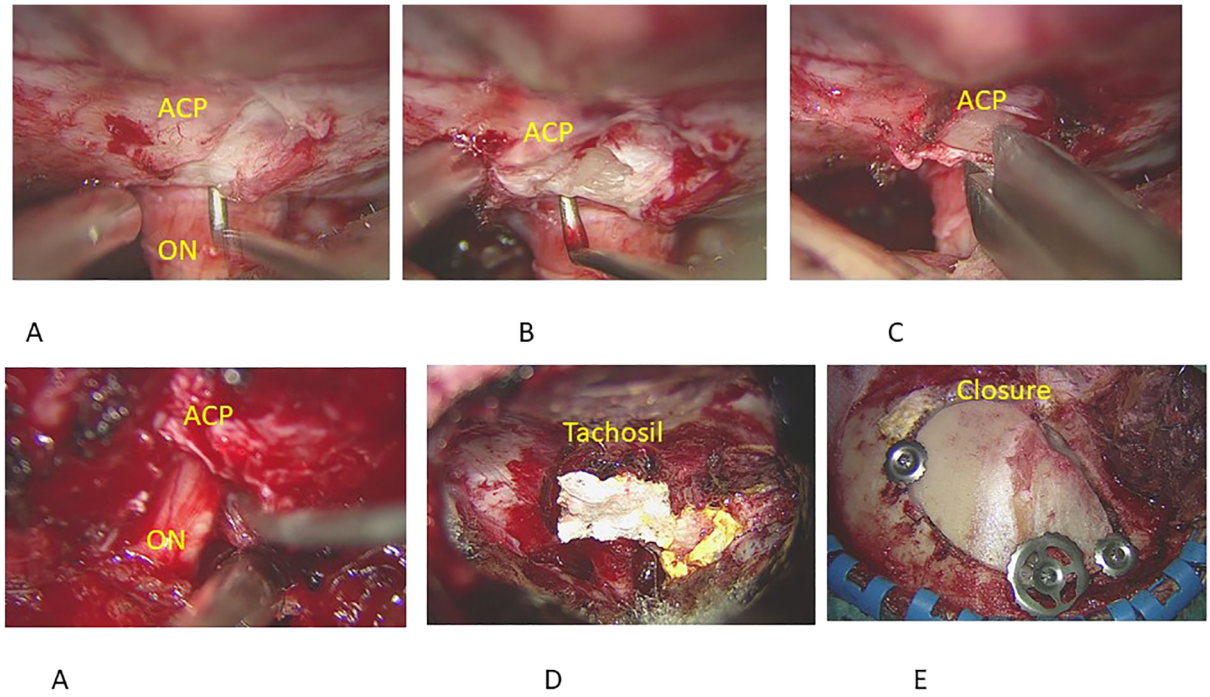

Fig. 1. Demonstration of different steps of intradural opening of optic canal to decompress optic nerve (Fig. 1A–F). Abbreviations: ACP = anterior clinoid process, ON = optic nerve.

3. Conclusion

This technique is effective and has no additional morbidity.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.inat.2019.100601.